

**CLAIMS**

- 1       1. An optical servo writer system comprises:
  - 2           a laser generating beams of collimated light;
  - 3           a lens positioned to receive and focus the collimated
  - 4           light; and
  - 5           a spatial filter positioned adjacent the lens to allow a
  - 6           subset of the collimated light to pass through the filter.
- 1       2. The system of claim 1 further comprising an optical
- 2       subsystem positioned between the laser and the lens, the
- 3       optical subsystem receiving the beams of collimated light and
- 4       splitting the beams.
- 1       3. The system of claim 2 wherein the spilt beams comprise
- 2       servo beams and ghost beams.
- 1       4. The system of claim 3 wherein the subset is servo beams.
- 1       5. The system of claim 1 further comprising a digital linear
- 2       tape positioned adjacent the spatial filter with the spatial
- 3       filter allowing the subset of collimated light to hit the
- 4       digital linear tape and produce servo marks.
- 1       6. The system of claim 2 wherein the optical subsystem
- 2       comprises an attenuator placed in proximity to a beam expander
- 3       and a diffractive optical element.

1       7. The system of claim 2 wherein the optical subsystem  
2 comprises a bi-prism and several lenses.

1       8. The system of claim 5 wherein the spatial filter includes  
2 a plurality of openings positioned to allow the subset of  
3 collimated light to pass through the filter.

1       9. The system of claim 8 wherein the plurality of openings  
2 are positioned relative to the plane of the digital linear  
3 tape to prevent debris from clogging the openings when the  
4 subset of collimated light hits the digital linear tape to  
5 produce servo marks.

1       10. The system of claim 9 wherein the position of the  
2 successive openings are staggered relative to the plane of the  
3 digital linear tape.

1       11. The system of claim 1 wherein the spatial filter  
2 comprises an ablative film bonded to a clear substrate.

1       12. An optical system for producing a plurality of servo  
2 marks on a digital linear tape comprises:  
3              a laser generating beams of collimated light;  
4              an optical subsystem positioned to receive the beams of  
5 collimated light and split the beams;  
6              a lens positioned to receive and focus the split beams;  
7              and

8           a spatial filter positioned adjacent the lens to allow a  
9 subset of the split beams to pass through the filter.

1       13. The system of claim 12 wherein the split beams include  
2 servo beams and ghost beams.

1       14. The system of claim 13 wherein the subset is the servo  
2 beams.

1       15. The system of claim 14 wherein the servo beams hit the  
2 digital linear tape.

1       16. The system of claim 12 wherein the spatial filter  
2 includes a plurality of apertures positioned to allow the  
3 subset of split beams to pass through the filter.

1       17. The system of claim 16 where the plurality of apertures  
2 are staggered with respect to each other so as to prevent  
3 clogging.

1       18. A method for producing optical servo marks on a digital  
2 linear tape comprises:

3           generating beams of collimated light in a laser;  
4           receiving and focusing the beams of collimated light in a  
5 lens; and

6           filtering the beams of collimated light near the focus of  
7 the lens to allow a subset of the beams to pass through a  
8 filter and hit the digital linear tape.

1       19.     The method of claim 18 wherein generating further  
2     comprises splitting the beams of collimated light into desired  
3     beams and ghost beams.

1       20.     The method of claim 19 wherein splitting is  
2     accomplished by passing the beams of collimated light through  
3     a diffractive optical element.

1       21.     The method of claim 19 wherein splitting is  
2     accomplished by passing the beams of collimated light through  
3     a bi-prism lens to generate two beams which are then brought  
4     back together by several lenses to form multiple spots on the  
5     tape by means of two beam interference.

1       22.     The method of claim 18 wherein the subset of beams is  
2     the desired beams.

1       23.     The method of claim 18 wherein filtering comprises  
2     passing the beams of collimated light to a spatial filter.

1       24.     The method of claim 23 wherein the spatial filter  
2     includes a plurality of openings positioned to allow the  
3     subset to pass through the filter.

1       25.     The method of 24 wherein the plurality of openings are  
2     generated in situ.

1       26. The method of claim 23 wherein generating the openings  
2       comprises:

3                 providing a solid spatial filter;  
4                 generating openings in the spatial filter by allowing the  
5       subset to cut through the spatial filter to produce the  
6       plurality of openings.

1       27. The method of claim 24 wherein the openings are staggered  
2       with respect to each other to minimize clogging.

1       28. An optical servo writer system for a digital linear tape  
2       comprises:

3                 a laser optics system generating beams of collimated  
4       light;

5                 a first lens positioned to receive and focus the  
6       collimated light;

7                 a spatial filter positioned adjacent the lens to allow a  
8       subset of the collimated light to be focused and pass through  
9       the filter; and

10                a second lens positioned to restore the subset into  
11       collimated beams that propagate towards a third lens.

1       29. The system of claim 28 wherein the beams comprise servo  
2       beams and ghost beams.

1       30. The system of claim 29 wherein the subset is servo beams.

1       31. The system of claim 30 wherein the third lens focuses the  
2       subset onto the digital linear tape producing servo marks.

1       32. The system of claim 28 wherein the laser optics system  
2       comprises:

3             a laser source for producing light to an attenuator; and  
4             a beam expander for receiving the light and expanding the  
5       beam to become a collimated beam with the proper diameter and  
6       sending it to a diffractive optical element.

1       33. The system of claim 28 wherein the laser optics system  
2       comprises a laser source for producing light to a bi-prism  
3       lens to generate two beams which are then brought back  
4       together by several lenses to form multiple spots on the tape  
5       by means of two beam interference.

1       34. The system of claim 28 wherein the spatial filter  
2       includes a plurality of openings positioned to allow the  
3       subset through the spatial filter.

1       35. The system of claim 28 wherein the first lens is a  
2       planar-convex lens.

1       36. The system of claim 28 wherein the second lens is a  
2       planar-convex lens.

1       37. The system of claim 28 wherein the third lens is a scan  
2       lens.